Remarks

The Official Action rejected claims 1-13, 15-29, and 32 and objected to claims 30, 31, and 33-37. Claims 1-13 and 15-37 remain pending. Applicant respectfully requests allowance of the pending claims in light of the points that follow.

Allowable Subject Matter

Applicant gratefully acknowledges that claims 30, 31, and 33-37 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant, however, has not elected to rewrite claims 30, 31, and 33-37 at this time since Applicant believes the claims from which they depend are also allowable.

Claim Rejections – 35 USC § 102 (Bargh)

The Official Action rejected claim 25 under 35 USC 102(e) as being anticipated by Bargh et al (US 6,195, 627). Applicant respectfully requests the rejection of claim 25 to be withdrawn in light of the points that follow.

As is well-established, in order to successfully assert a *prima facie* case of anticipation, the Official Action must provide a single prior art document that includes every element and limitation of the claim or claims being rejected. Therefore, if even one element or limitation is missing from the cited document, the Official Action has not succeeded in making a prima facie case.

Claim 25

Claim 25 requires "a **collection module that is integrated with the logic design element** and that is structured and arranged to **automatically collect and**

store instrumentation data, which represents usage and performance related

statistics relating to the logic design element during the simulation. The Official Action

appears to rely on Fig. 4B, element 420, and col. 12, lines 25-67 and col. 13 and 14 to

teach the limitations of claim 25.

Bargh appears to teach (in col. 12, lines 25-40) an instrumentation entity that is

written using the same high level description language (HDL) utilized to describe the

entities in design (or design entities). The simulation model of Bargh discloses (in col.

12, lines 25-40) "design entities" and "instrumentation entities", which are distinct and

the instrumentation entity of Bargh does not appear to be integrated with the logic

design element to automatically collect instrumentation data relating to the logic design

as required by claim 25.

In contrast to claim 25, Bargh teaches (in col. 4, lines 14-17) that the

instrumentation entity may be utilized to monitor each instantiation of the design entity

within the simulation model *without the instrumentation entity becoming incorporated*

into the digital circuit design. Also, Bargh teaches (in col. 5, lines 19-21) that the

instrumentation entity is utilized to monitor specified design parameters *while not*

becoming the integral part of the design itself (emphasis added by the Applicant).

Bargh appears to be teaching away from integrating design entities and instrumentation

entities.

Also, the office action appears to be giving an unreasonably broad interpretation

(in sec 7.2.1.1 of the office action) to the term "connected" to include "integrated" as

well. However, connected (see http://www.brainydictionary.com/) may mean "to join",

"to fasten together", "to establish a bond or relation between" and integrate may mean

"to form into one whole", "to make entire", "to give the sum of". As the meaning of the

terms "connected" and "integrated" are not the same, connecting instrumentation entity

and the design entity may not be equated **to integrating the collection module with**

the logic design element.

Thus, Bargh does not appear to teach a collection module that is integrated with

the logic design element and that is structured and arranged to automatically collect

instrumentation data, which represents usage and performance related statistics

relating to the logic design element during the simulation as required by claim 25.

Since, Bargh does not teach every limitation of claim 25, Bargh does not anticipate the

invention of claim 25. Applicants respectfully request the rejection of claim 25 be

withdrawn.

Claim Rejections – 35 USC § 103(a) (Bargh/Shubert)

The Official Action further rejected claims 1-2 and 13 under 35 USC 103(a) as

being unpatentable over Bargh et al (US 6,195, 627) in view of Shubert et al (US 6, 581,

191). Applicants respectfully request allowance of claims 1-2 and 13 in light of the

points that follow.

Claims 1 and 13

Claims 1 and 13 require **having the logic design element automatically**

collect and store instrumentation data during the simulation, wherein the

instrumentation data represents usage and performance related statistics that relate to

the logic design element. The Official Action appears to rely Figs. 4A, 4B, elements

421-424, and description in col. 12, lines 25-67 and cols. 13-14 of Bargh and Figs. 1A,

1B, 2, and col. 13, lines 43-67, col. 14, lines 1-23, and col. 12, lines 20-30 to teach the

limitations of claims 1 and 13.

As described above, Bargh teaches (in col. 4, lines 14-17) that the instrumentation entity and the design entity are not integrated together. In contrast to the claims 1 and 13, Bargh appears to teach (see col. 4, lines 14-17 and col. 5, lines 19-21) away from integrating the instrumentation entity and the design entity. As a result, the design entity of Bargh does not include the instrumentation entity as required by claims 1 and 13.

Shubert appears to teach (in col. 12, lines 20-30) that the device under test (DUT) 102 includes design instrumentation circuitry (DIC) 106 to facilitate debugging of DUT 102. In col. 13, lines 43-67 and col. 14, lines 1-23, Shubert, merely, appears to teach creating a DIC 106 and incorporating the DIC 106 into the electronic system 104. However, Shubert does not disclose having a **logic design element automatically collect and store instrumentation data during the simulation**, wherein the instrumentation data represents usage and performance related statistics that relate to the logic design element as required by claims 1 and 13.

Bargh teaches to keep the instrumentation entity without being integrated with the design entity to reduce the complexity of simulation. There would have been no motivation to a person of ordinary skill in the art to combine the teachings of Bargh and Shubert to arrive at the invention covered by scope of claims 1 and 13 of the instant application. Since, there is no motivation to combine the teachings of Bargh and Shubert, Applicants respectfully request the rejection of claims 1 and 13 be withdrawn.

Claim 2

Claim 2 depends from claim 1 and is allowable for at least the reasons given above. Applicants respectfully request the rejection of claim 2 be withdrawn.

Claim Rejections – 35 USC § 103(a) (Bargh/Shubert/Watkins)

The Official Action further rejected claims 3-6 and 15-18 under 35 USC 103(a) as being unpatentable over Bargh et al (US 6,195, 627) as modified by Shubert as applied to claims 1-2 and 13 above, further in view of Watkins (US 5, 220, 512). Applicants respectfully request allowance of claims 3-6 and 15-18 in light of the points that follow.

Claims 3-6 and 15-18

Claims 3-6 and 15-18 depend from claim 1 and 13 and is allowable for at least the reasons given above. Bargh as modified by Shubert, as applied to claims 1 and 13 does not teach every limitation of claims 1 and 13. In contrast to claims 1 and 13, as described above, Bargh teaches away from integrating the instrumentation entity with the design entity to reduce the complexity of simulation.

Watkins discloses (in col. 10, lines 53-63 describing Fig. 3) a display screen 300 to display the textual state information, at different points to be monitored, when provided with different input values. Watkins, merely, teaches an ECAD system to collect the results (textual or graphical), generated by the logic circuit, at different points to be monitored after providing inputs to the logic circuit. The result may represent, for example, a list of logic 1's and 0's generated by a logic circuit when provided with test inputs. The result does not represent usage and performance related statistics that relate to the logic design element.

As a result, a person of ordinary skill in the art would not be motivated to combine the teachings of Bargh and Shubert with the teachings of Watkins to arrive at the invention disclosed by the scope of claims 3-6 and 15-18. Therefore, Applicants respectfully request the rejection of claims 2-6 and 15-18 be withdrawn.

Claim Rejections – 35 USC § 103(a) (Bargh/Shubert/Srivastava)

The Official Action further rejected claims 7-9 and 19-21 under 35 USC 103(a) as being unpatentable over Bargh as modified by Shubert as applied to claims 1-2 and 13 above, further in view of Srivastava (Mani B. Srivastava et al: "Using VHDL for High-level, Mixed-mode system Simulation", Sept 1992, IEEE Design & Test of Computers, Vol. 9, Issue-3). Applicants respectfully request allowance of claims 7-9 and 19-21 in light of the points that follow.

Claims 7-9 and 19-21

Claims 7-9 and 19-21 depend from claim 1 and 13 and is allowable for at least the reasons given above. Bargh as modified by Shubert, as applied to claims 1 and 13 does not teach every limitation of claims 1 and 13. In contrast to claims 1 and 13, as described above, Bargh teaches away from integrating the instrumentation entity with the design entity to reduce the complexity of simulation.

Srivastava discloses (in Fig. 3 and description provided in page 36) a VHDL implementation of channels in the process network model. Srivastava appears to teach novel application of VHDL to the modeling of complex and application specific systems. Srivastava, merely, appears to use specialized VHDL packages to model the system's discrete portion as a set of concurrent processes communicating via channels with well-defined protocols.

As a result, a person of ordinary skill in the art would not be motivated to combine the teachings of Bargh and Shubert, as applied to claims 1 and 13 with the teachings of Srivastava to arrive at the invention disclosed by the scope of claims 7-9 and 19-21. Therefore, Applicants respectfully request the rejection of claims 7-9 and 19-21 be withdrawn.

Claim Rejections – 35 USC § 103(a) (Bargh/Shubert/Koseko)

The Official Action further rejected claims 10-12 and 22-24 under 35 USC 103(a) as being unpatentable over Bargh as modified by Shubert as applied to claims 1-2 and 13 above, further in view of Koseko (Yasushi Koseko: "Tri-state bus conflict checking method for ATPG using BDD"). Applicants respectfully request allowance of claims 10-12 and 22-24 in light of the points that follow.

Claims 10-12 and 22-24

Claims 10-12 and 22-24 depend from claim 1 and 13 and is allowable for at least the reasons given above. Bargh as modified by Shubert, as applied to claims 1 and 13 does not teach every limitation of claims 1 and 13. In contrast to claims 1 and 13, as described above, Bargh teaches away from integrating the instrumentation entity with the design entity to reduce the complexity of simulation. Koseko, merely, appears to propose (in page 512, section 1. Introduction, right-side column, third paragraph) a design rule checking method to efficiently check for signal conflicts and bus floating conditions using a binary-decision tree representation.

As a result, a person of ordinary skill in the art would not be motivated to combine the teachings of Bargh and Shubert with the teachings of Koseko to arrive at the invention disclosed by the scope of claims 10-12 and 22-24. Therefore, Applicants respectfully request the rejection of claims 10-12 and 22-24 be withdrawn.

Claim Rejections – 35 USC § 103(a) (Bargh/Watkins)

The Official Action further rejected claims 26-27 under 35 USC 103(a) as being unpatentable over Bargh as applied to claim 25 above, in view of Watkins. Applicants respectfully request allowance of claims 26-27 in light of the points that follow.

Claims 26-27

Claims 26-27 depend from claim 25 and is allowable for at least the reasons given above. As described above with reference to claim 25, Bargh does not teach every limitation of claim 25. In contrast to claim 25, as described above, Bargh teaches away from integrating the instrumentation entity with the design entity to reduce the complexity of simulation. Watkins appears to teach (in col. 7, lines 12-19) an editor and a simulator, which together simulate and display the results of simulation on a display device. Both Bargh and Watkins individually or together do not appear to teach the limitations of claim 25.

As a result, a person of ordinary skill in the art would not be motivated to combine the teachings of Bargh with the teachings of Watkins to arrive at the invention disclosed by the scope of claims 26-27. Therefore, Applicants respectfully request the rejection of claims 26-27 be withdrawn.

Claim Rejections – 35 USC § 103(a) (Bargh/Koseko)

The Official Action further rejected claim 29 under 35 USC 103(a) as being unpatentable over Bargh as applied to claim 25 above, in view of Koseko. Applicants respectfully request allowance of claim 29 in light of the points that follow.

Claim 29

Claim 29 depends from claim 25 and is allowable for at least the reasons given above. As described above with reference to claim 25, Bargh does not teach every limitation of claim 25. In contrast to claim 25, as described above, Bargh teaches away from integrating the instrumentation entity with the design entity to reduce the complexity of simulation. As described above, Koseko, merely, appears to propose (in

page 512, section 1. Introduction, right-side column, third paragraph) a design rule checking method to efficiently check for signal conflicts and bus floating conditions using a binary-decision tree representation.

As a result, a person of ordinary skill in the art would not be motivated to combine the teachings of Bargh with the teachings of Koseko to arrive at the invention disclosed by the scope of claim 29. Therefore, Applicants respectfully request the rejection of claim 29 be withdrawn.

Claim Rejections – 35 USC § 103(a) (Bargh/Srivastava)

The Official Action further rejected claim 32 under 35 USC 103(a) as being unpatentable over Bargh as modified by Shubert as applied to claims 1-2 and 13 above, further in view of Srivastava. Applicants respectfully request allowance of claim 32 in light of the points that follow.

Claim 32

Claim 32 depends from claim 1 and is allowable for at least the reasons given above. Bargh as modified by Shubert, as applied to claim 1 does not teach every limitation of claim 1. In contrast to claim 1, as described above, Bargh teaches away from integrating the instrumentation entity with the design entity to reduce the complexity of simulation.
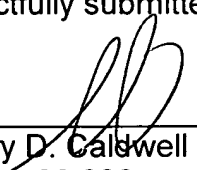
As a result, a person of ordinary skill in the art would not be motivated to combine the teachings of Bargh as modified by Shubert with the teachings of Srivastava to arrive at the invention disclosed by the scope of claim 32. Therefore, Applicants respectfully request the rejection of claim 32 be withdrawn.

Conclusion

The foregoing is submitted as a full and complete response to the Official Action. Applicants submit that the application is in condition for allowance. Reconsideration is requested, and allowance of the pending claims is earnestly solicited. Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #02-2666. If the Examiner believes that there are any informalities, which can be corrected by an Examiner's amendment, a telephone call to the undersigned at (503) 439-8778 is respectfully solicited.

Respectfully submitted,

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